VIII.—*Note on the Teeth of the Mastodon à dents etroites of the Siwálik Hills. By Captain* P. T. CAUTLEY. *Pl.* XI.

[Read at the meeting of the 1st June.]

Without further preface I refer the reader to the 1st volume of the Osemens fossiles, page 268. Figures 1 and 2, plate 4, under the head of "Divers Mastodons."

These drawings were presented to CUVIER by M. FAUJAS, and the fossil was found near Asti in Upper Italy.

CUVIER merely alludes to this fossil as one of the varieties into which the true Mastodon à dents etroites passes by a greater subdivision and an irregularity of position of the mamillæ; the proportions of length to breadth of the tooth retaining their full and perfect character.

By comparing the accompanying drawings with the figures above alluded to, there can be no demur, I imagine, in identifying the Siwálik variety of Mastodon now under review with the Asti fossil. It remains therefore simply to note the peculiarities in form of the tooth: although it may be a point of consideration hereafter, whether, as the character of the tooth is so marked, and its peculiarities so rigidly adhered to throughout the whole of the remains found in the Siwáliks, it may not be placed under a sub-genus, that of "*angustidens*," with the specific denomination of *M. Sivalensis*.

There is no cortical substance or crusta petrosa; the tooth consisting of enamel and ivory only, the former being very thick and massive, as is normal in the mastodons.

The coronal surface consists of a double line of conical and obtusely pointed mamillæ: those on the external side being in most cases perfect, whilst those on the inner side are divided by a fissure or fissures into two or three irregularly formed obtuse points. These mamillæ are not, as in the true Mastodon angustidens, placed transversely or at right angles with the line of surface, but meet each other from right to left alternately, so that the furrow on one side is interrupted by the mamilla on the other; and the mamillæ on the whole line of tooth lock into each other in the same way that two serrated edges opposed to each other might be supposed to do, were they placed in contact.

The outer surface of the enamel is smooth, and the space or furrow between each mamilla both on the external and internal surface is marked by a small tubercle, the presence of which however does not appear to be constant.

The surface of the tooth of the lower jaw wears obliquely and outwardly on the grinding surface, as in the ruminants, in which respect it differs entirely from the elephants.

The wear of the coronals is marked at the commencement by irregularly lobed figures, which, as the detrition advances, become confus-

ed, and gradually unite, until the mamillæ are worn away entirely, when the tooth is left with merely a surface of ivory surrounded by enamel.

The drawings are intended to represent the tooth at these different stages; from the state of germ, to the old and worn down tooth, shewing the intermediate state of detrition at different ages.

Pl. xi. *Fig.* 1. Fragment of tooth in germ, with the enamel on one of the mamillæ fractured.

Fig. 2. A very perfect molar of a young but adult animal, the front surface being moderately worn, and the rear portion in the state of germ. This is the right molar of the lower jaw. The length of this tooth is 9·2 inches or ·234 metres, and the breadth measured on the base or lower bulge of the mamillæ 2·95 inches or ·074 metres; it consists of six pair of points or mamillæ, with apparently (as the fossil is slightly fractured at this point) a bilobed talon in the rear. The coronal surface is here shewn.

Fig. 3. An internal view of the same tooth.

Fig. 4. An external view of the same, exhibiting the obliquity of wear on the coronal surface.

Fig. 5 and 6. Fragment of a tooth of a greater age than the preceding.

Fig. 7 and 8. Fragment of tooth with jaw attached; this is a portion of the left molar of the lower jaw of an animal of the same age as that represented in *figs.* 5 and 6, distinctly shewing the cup-like cavities formed by the detrition and gradual junction of the mamillæ: the obliquity of wear towards the outer surface is here very distinctly marked.

Fig. 9 and 10. Fragment of a tooth of the same age as the preceding.

The three last specimens have belonged to animals of nearly the same age; the mamillæ are much worn, and we see the gradual obliteration of their independent hollows, reducing the coronal surface to the appearance exhibited in *figs.* 11 and 12.

Fig. 11. Shews the detrition at an intermediate state between *figs.* 9 and 10, and *fig.* 12. The posterior portion of this specimen still retains the encircling lines of enamel on the worn down points, whilst the portion in front has arrived at its last stage of wear.

Fig. 12. May be considered as a representation of the tooth in its final state of detrition, when all marks of the mamillated form of crown is obliterated, and nothing remains but an outer border of enamel encircling a deep internal hollow of ivory.

I wish to draw attention particularly to the alternating position of the mamillæ, which I consider to be the chief specific character, and which is distinctly marked throughout the whole series; and, referring

again to the Asti fossil as figured in CUVIER, I think that a clear identification is established.

As my object in writing this note is simply to point out the distinctive characters of the teeth of the mastodon à dents etroites, which have been found in the Siwálik hills, it is unnecessary to make any further remarks until we can enter upon a general description of the fossil mastodons and elephants of these hills; noting however, that from the half of a lower jaw of this species, with its ramus attached, which is now in my possession, we may look forward to some peculiarities of form, differing very materially not only from the fossil and existing elephant, but also from the other species of mastodons.

Up to this period I am only aware of the discovery of two species of mastodons in the Siwálik hills; namely, the *variety* of *M. angustidens* which is the subject of this note, and the *M. Elephantoides* of Clift. The former is very rare, and the latter in very great abundance.

IX.—*Meteorological Register kept at Bangalore. By Dr.* J. MOUAT, *Medical Surgeon, 13th Dragoons.*

If the accompanying meteorological table, kept at Bangalore, for the year 1835, be of any interest, you are at liberty to make any use of it you please. It has been drawn up for the medical reports, which I am in the habit of transmitting to the heads of my department, and the transcription of which is all the trouble it now gives. The original table, as kept every two hours for the entire of 1834 and 1835, are also at your service; but they are two voluminous and bulky, I should think, for any useful purpose. The column of monthly average was obtained by adding the state of the thermometer, kept every two hours for the entire 24 hours; dividing this by 12, gave the average for each day. These added together for the month, and divided by the number of days in the month, give the monthly average noted in the table.

The wards of the hospital are visited by one of the medical pupils or apprentices every two hours from 10 P. M. to 4 A. M., whose duty it is to give medicine, &c. to the sick, and, at the same time, to mark the thermometer. The corporal of the guard, when relieving the sentries, is responsible, and sees this duty performed; and, in the day time, the hospital serjeant, apothecaries, pupils on duty, &c. mark it, the rest of the 24 hours; so that every source of error is endeavoured to be avoided. The thermometer marked S., or *side*, is fixed on the end of a shelf, some inches from the wall, and by its position, screened from the influence of the glare or reflected heat; the other, marked C. or *centre*, is suspended from the centre of the room, about seven feet from the floor, and the general agreement of the two instruments is a pretty good guarantee for their accuracy. The apartment is the surgery of the